MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2018/2019

TDC 1231 – Data Communications and Networking

(All sections / Groups)

9 March 2019
2.30 pm – 4.30 pm
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 3 printed pages (including cover page) with 5 questions only.

2. Attempt **ALL Questions.** All Questions carry equal marks (10 marks). The distribution of the marks for each question is given.

3. Please print all your answers in the answer booklet provided.

QUESTION 1 [3+3+4 marks]

(a) Produce **THREE** diagrams to differentiate mesh, ring and star topology.

(b) Assuming the maximum data rate is 2.4 Mbps and bandwidth is 600 KHz, what is the level of digital signaling?

(c) List **FOUR** components that cause latency.

QUESTION 2 [3+2+3+2 marks]

(a) List **THREE** examples of guided transmission media.

(b) A signal is carrying data in which two-data element is encoded as one signal element. If the bit rate is 128 kbps, what is the average value of the baud rate if c is between 0 and 1?

(c) List **THREE** processes of pulse code modulation (PCM).

(d) What is Amplitude Modulation (AM)?

QUESTION 3 [2+2+3+1+2 marks]

(a) Contrast parallel transmission and serial transmission.

(b) Compute the checksum value if the following block of 16 bits is to be sent using a checksum of 8 bits.
10011001 00010010

(c) Define stop-and-wait protocol. Also, give a diagram on stop-and-wait protocol.

(d) Define single-bit error.

(e) Calculate the Hamming distance between 1011 and 1111.

QUESTION 4 [4+3+3 marks]

(a) A Time-division multiplexing (TDM) multiplexer combines four 200-kbps channels using a time slot of 4 bits and each frame carries 8 bits.
i. What is the frame rate?
ii. What is the frame duration?
iii. What is the bit rate?
iv. What is the bit duration?

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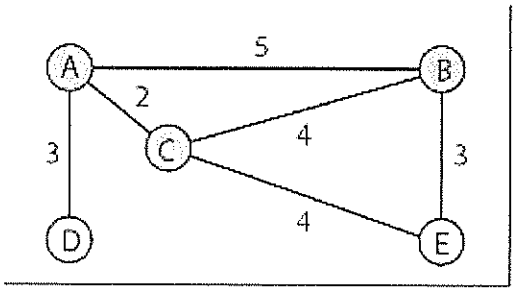
(b) State **THREE** switching networks.

(c) Assume the start point is at A, produce a shortest path tree from the topology below. Show step by step.



QUESTION 5 [4+2+4 marks]

(a) List **FOUR** statements on bridges.

(b) How to identify a unicast physical address? State **ONE** example of unicast physical address.

(c) Given E0-06-E6-C0-B6-C0 as the physical address, show how the address is sent out online (Transmission of Address Bits).

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